



PATENT
Attorney Docket No.: 021318-000610US

UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Stephen F. Brown et al.

Application No.: 10/620,329

Filed: July 14, 2003

For: METHOD AND APPARATUS FOR
TRANSCODING BETWEEN HYBRID
VIDEO CODEC BITSTREAMS

Customer No.: 20350

Confirmation No. 7952

Examiner: Tung T. Vo

Technology Center/Art Unit: 2621

PETITION TO MAKE SPECIAL FOR
NEW APPLICATION PURSUANT TO
37 C.F.R. § 1.102(d) &
M.P.E.P. § 708.02, Item VIII.
ACCELERATED EXAMINATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a petition to make special the above-identified application in accordance with MPEP § 708.02, Item VIII, accelerated examination. The application has not received any examination by the Examiner.

(A) The Commissioner is authorized to charge the petition fee of \$130 under 37 C.F.R. § 1.17(h), and any additional fees that may be associated with this petition may be charged to Deposit Account No. 20-1430.

(B) All the claims are believed to be directed to a single invention. If the Examiner determines that all the claims presented are not obviously directed to a single invention, then Applicants will make an election without traverse as a prerequisite to the grant of special status where the specific grouping of claims will be determined by the Examiner.

(C) A pre-examination search was performed by an independent patent search firm. The search was made in at least the following IPC classes: G06 and H04. The search was also made in at least the following U.S. classes (indicated in bold lettering) and subclasses: **348/584, 375/240.03, 375/240.16, 375/240.24, 375/240.26, 382/238, 709/232, and 725/087**. In addition, the following databases were searched using the keywords listed below:

Databases:

- MicroPatent: For full text of U.S., EP, PCT, Great Britain, and English abstracts of German patent records as well as the front page of JP patent documents
- IEEE Xplore: IEEE Journals and Conference Papers
- ACM Digital Library: For papers published by ACM
- Citeseer: For scientific literature in computer and information science
- Google Scholar: For journals in various fields
- IP.Com: For journals in various fields
- Global spec: For various technical journals, patent publications, products, etc.

Keywords:

1. (video adj3 transcod*) AND FILING DATE: <20020717
2. (video adj3 transcod*) AND US or Any IPC: 37524016 or 709232 or 725087 or 348584 or 37524024 or 382238 or 37524003 or 37524026 or H04 or G06 AND Filing Date: <20020717
3. (video adj3 transcod*) AND US or Any IPC: 37524016 or 709232 or 725087 or 348584 or 37524024 or 382238 or 37524003 or 37524026 or H04 or G06 AND Filing Date: <20020717 AND in Claims, Title or Abstract
4. (video adj3 transcod*) and ((variable adj2 length adj2 cod*) or (VLC)) AND Filing Date: <20020717
5. (video adj3 transcod*) and ((variable adj2 length adj2 cod*) or (VLC)) and (MPEG-4 and H.263) AND Filing Date: <20020717
6. (video adj3 transcod*) and ((variable adj2 length adj2 cod*) or (VLC)) and (MPEG-4 and H.263) AND US or Any IPC: 37524016 or 709232 or 725087 or 348584 or 37524024 or 382238 or 37524003 or 37524026 or H04 or G06 AND Filing Date: <20020717
7. ((variable adj2 length adj2 cod*) or (VLC)) and (VLC adj2(encod* or decod*)) and (MPEG-4 and H.263) AND Filing Date: <20020717
8. (variable adj length adj cod*) and (MPEG-4 and H.263) AND US or Any IPC: 37524016 or 709232 or 725087 or 348584 or 37524024 or 382238 or 37524003 or 37524026 or H04 or G06 AND Filing Date: <20020717
9. (variable adj length adj cod*) AND Filing Date: <20020717

10. MPEG-4 or H.263 or VLC or hybrid codec "variable length coding" and "video transcoding".
11. MPEG-4 or H.263 "variable length coding" and "video transcoding"
12. video coding encoding converting parameters MPEG-4 H.263 "variable length coding"
13. ((variable w/1 length w/2 code) or (vlc)) and (mpeg-4 and h.263) and (video w/2 transcoding)
14. (video + transcoding + "variable length code")
15. ((video and transcoding) and ('variable length coding' or (vlc)))
16. ((variable w/1 length w/2 cod*) or (VLC)) and (video and transcod*)

Additional searches were performed for the assignee names and inventor (author) names identified using keyword searching and other search strategies.

A copy of the search report is provided herewith as Exhibit A.

The references listed in the search report have been included in a second Supplemental Information Disclosure Statement submitted herewith.

No inference should be made that these references are prior art for purposes under 35 U.S.C. §§ 102 and 103 merely because they are cited in the present petition, the search report, or the information disclosure statements. Applicants have not made any admission that these references are prior art for purposes under 35 U.S.C. §§ 102 and 103.

In sum, the following references have been identified:

- (1) U.S. Patent No.:
6,934,334
- (2) U.S. Patent Application Publication No.:
2001/0047517
- (3) WIPO International Publication No.:
WO 01/95633
- (4) Non-Patent Literature Documents:

Lei et al., H.263 Video Transcoding for Spatial Resolution Downscaling, *International Conference on Information Technology: Coding and Computing*, April 8-10, 2002, pp. 425-430.

Web link: <http://citeseer.ist.psu.edu/617391.html>

(D) Copies of all references referred to herein are enclosed herewith, collectively as Exhibit B.

(E) Set forth below is a detailed discussion of the references, pointing out with particularity how the claimed subject matter recited in the claims, amended according to the preliminary amendment filed herewith, is distinguishable over the references.

Claimed Subject Matter of the Present Invention

The present invention is directed to an apparatus for processing an incoming bitstream coded for a first hybrid video codec to an outgoing bitstream coded for a second hybrid video codec.

Independent claim 1 recites an apparatus including a variable length decoder adapted to decode the incoming video bitstream from the first hybrid video codec. The variable length decoder is further adapted to output decoded symbols. The apparatus also includes a semantic conversion unit adapted to perform semantic conversion of the decoded symbols. The semantic conversion unit is further adapted to process a portion of the decoded symbols to adapt the decoded symbols to converted symbols compatible with the second hybrid video codec. The apparatus further includes a variable length encoder adapted to encode the converted symbols for the second hybrid video codec, thereby providing the outgoing bitstream. Dependent claims 2-18, 22-24 and 28-29 recite specific aspects of the present invention.

U.S. Patent No. 6,934,334

This reference describes a method of performing video transcoding including decoding a first bit stream encoded by a first video encoding format to obtain decoded video data and side information. The decoded video data and side information is converted into a form suitable for a second video encoding format. The converted video data is encoded using motion vectors contained in the side information to obtain a second bit stream of the second video

encoding format. The method described by this reference provides a high speed video transcoding process.

This reference does not disclose at least an apparatus including a variable length decoder adapted to decode the incoming video bitstream from the first hybrid video codec and further adapted to output decoded symbols. The apparatus also including a semantic conversion unit adapted to perform semantic conversion of the decoded symbols and further adapted to process a portion of the decoded symbols to adapt the decoded symbols to be compatible with the second hybrid video codec. The apparatus further including a variable length encoder adapted to encode outgoing symbols from an output of the semantic conversion unit to the second hybrid video codec, thereby providing the outgoing bitstream.

Moreover, this reference does not provide the benefits available through embodiments of the present invention, including reducing the computational complexity of the transcoder by exploiting the relationship between the parameters available from the decoded input bitstream and the parameters required to encode the output bitstream.

Hence the above reference does not disclose or suggest the present invention as recited in the pending claims.

U.S. Patent Application Publication No. 2001/0047517

This reference describes a method and apparatus for performing transcoding of multimedia data between two or more network elements. One or more transcoding hints associated with the multimedia data are stored at a network element. Additionally, one or more capabilities associated with a network element are obtained. Transcoding is performed using the transcoding hints and the network element capabilities in a manner suited to the capabilities of the network element.

This reference does not disclose at least an apparatus including a variable length decoder adapted to decode the incoming video bitstream from the first hybrid video codec and further adapted to output decoded symbols. The apparatus also including a semantic conversion unit adapted to perform semantic conversion of the decoded symbols and further adapted to process a portion of the decoded symbols to adapt the decoded symbols to be compatible with the second hybrid video codec. The apparatus further including a variable length encoder

adapted to encode outgoing symbols from an output of the semantic conversion unit to the second hybrid video codec, thereby providing the outgoing bitstream.

Moreover, this reference does not provide the benefits available through embodiments of the present invention, including reducing the computational complexity of the transcoder by exploiting the relationship between the parameters available from the decoded input bitstream and the parameters required to encode the output bitstream

Hence the above reference does not disclose or suggest the present invention as recited in the pending claims.

International Publication No. WO 0195633 A2

This reference describes a method of performing bit rate transcoding to convert a pre-compressed bitstream into another compressed bitstream at a different bit rate. This reference describes a particular method for transcoding a pre-compressed input bitstream that is provided in a first video coding format. The method includes the steps of: recovering header information of the input bitstream; providing corresponding header information in a second, different video coding format; partially decompressing the input bitstream to provide partially decompressed data; and re-compressing the partially decompressed data in accordance with the header information in the second format to provide the output bitstream.

This reference does not disclose at least an apparatus including a variable length decoder adapted to decode the incoming video bitstream from the first hybrid video codec and further adapted to output decoded symbols. The apparatus also including a semantic conversion unit adapted to perform semantic conversion of the decoded symbols and further adapted to process a portion of the decoded symbols to adapt the decoded symbols to be compatible with the second hybrid video codec. The apparatus further including a variable length encoder adapted to encode outgoing symbols from an output of the semantic conversion unit to the second hybrid video codec, thereby providing the outgoing bitstream.

Moreover, this reference does not provide the benefits available through embodiments of the present invention, including reducing the computational complexity of the transcoder by exploiting the relationship between the parameters available from the decoded input bitstream and the parameters required to encode the output bitstream

Hence the above reference does not disclose or suggest the present invention as recited in the pending claims.

Lei et al., H.263 Video Transcoding For Spatial Resolution Downscaling

This reference describes a method of downscaling compressed H.263 video into a lower spatial resolution and a lower transmission bit rate appropriate for users of handheld devices. This reference describes a method that reduces the computational cost of transcoding by resampling and reusing motion vectors from the incoming video stream, including refining motion vectors adaptively according to the motion of every frame or every macroblock in a frame. The proposed approach can improve the video quality and reduce predictive residues of every frame, hence reducing the transmission bit rate.

This reference does not disclose at least an apparatus including a variable length decoder adapted to decode the incoming video bitstream from the first hybrid video codec and further adapted to output decoded symbols. The apparatus also including a semantic conversion unit adapted to perform semantic conversion of the decoded symbols and further adapted to process a portion of the decoded symbols to adapt the decoded symbols to be compatible with the second hybrid video codec. The apparatus further including a variable length encoder adapted to encode outgoing symbols from an output of the semantic conversion unit to the second hybrid video codec, thereby providing the outgoing bitstream.

Moreover, this reference does not provide the benefits available through embodiments of the present invention, including reducing the computational complexity of the transcoder by exploiting the relationship between the parameters available from the decoded input bitstream and the parameters required to encode the output bitstream

Hence the above reference does not disclose or suggest the present invention as recited in the pending claims.

CONCLUSION

In view of comments presented in the present petition and claim amendments presented in the preliminary amendment filed herewith, the Examiner is respectfully requested to issue a first Office action at an early date.

Respectfully submitted,



Craig C. Largent
Reg. No. 56,400

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
Attachments
CCL/RTO/ka
60839043 v1